

## REMARKS

This paper is responsive to an Office Action mailed November 3, 2006. Prior to this response, claims 1-30 were pending. After amending claims 2, 12, and 24-27, claims 1-30 remain pending.

Section 3 of the Office Action states that claim 24 has been rejected under 35 U.S.C. 102(b) as anticipated by Rouffet et al. ("Rouffet"; US 5,410,731). The Office Action states that Rouffet describes a system where m primary satellite project N/m beams across an area to create N beam spots, citing Figs. 1 and 2, col. 3, lines 5-20, col. 4, ln. 6-65, col. 5, ln. 4-14. This rejection is traversed as follows.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

In Fig. 1 Rouffet depicts two satellites. Each satellite is broadcasting 2 beams: satellite S1 is broadcasting F1 and F2, and S2 is broadcasting F`1 and F`2. A total of 2 sub-areas are covered (T1 and T2) by the 4 beams.

Applicant's claim 24 states that m is equal to the number of primary satellites, and N is equal to the number of beam spots covering an area. If Rouffet's Fig. 1 is described in the parlance of the Applicant's claim, then m (the number of primary satellites) = 2, and N (beams spots covering the area) = 2. Claim 24 includes the additional limitation that each satellite projects N/m beams onto an area. The comparison between Rouffet and claim 24 breaks down when the term N/m is considered. In

Rouffet's system  $N/m = 2/2 = 1$ , meaning that each satellite projects 1 beam. However, each of Rouffet's satellites project 2 beams, not 1. Therefore, Rouffet does not disclose the limitation that each satellite projects  $N/m$  beams onto an area.

This same analysis can be applied to Rouffet's Fig. 2. In Fig. 2, there are 3 satellites ( $m = 3$ ) creating 2 areas of coverage ( $N = 2$ ). Therefore,  $N/m = 2/3$ . Again, it should be noted that claim 24 includes the limitation that each of the  $m$  satellites projects  $N/m$  beams. Clearly, each of Rouffet's satellites does not project  $2/3$  of a beam on an area – they each project 2 beams.

There are further differences. Claim 24 recites that each sub-area covered by a beam is separated from another sub-area by one beam width. Rouffet is absolutely silent concerning this limitation.

Finally, claim 24 recites that each satellite communicates on 1 of  $m$  band of frequencies. Rouffet does not use the term "frequency". However, with respect to Fig. 1, Rouffet states that beam F1 broadcasts 5 channels C1-C5 to area T1, and beam F2 broadcasts 5 channels C6-C10. Beam F'1 is capable of broadcasting back up channels for C1-5, and beam F'2 is capable of broadcasting back up channels for C6-C10 (col. 3, ln. 28-41). Rouffet does not disclose a satellite that broadcasts on 1 of  $m$  frequencies, or a satellite that broadcasts on 1 of 10 channels, or even a satellite that broadcasts just one set of channels (C1-C5 or C6-C10), as each beam from one of Rouffet's satellites broadcasts a different set of channels. Therefore, Rouffet does not disclose the limitations of each satellite communicating on 1 band of frequencies.

As noted above, Rouffet does not describe the limitation of a system where each satellite projects  $N/m$  beams, the limitation of beam

sub-areas being separated by one beam width, or the limitation of a satellite that communicates on only one band of frequencies. Therefore, Rouffet does not describe every limitation recited in claim 24. Since Rouffet does not explicitly describe every limitation, he cannot anticipate claim 24, and the Applicant respectfully requests that the rejection be removed.

In Section 5 of the Office Action, claims 1-10, 12-14, 18-21, and 25-30 have been rejected under 35 U.S.C. 103(a) as unpatentable with respect to Rouffet in view of Farrell (EP 1 065 806). The Office Action acknowledges that Rouffet fails to disclose n back up satellites, but states that Farrell discloses such as feature, and that it would have been obvious to incorporate the teachings of Farrell into Rouffet “to have a practical but satisfactory replacement satellite that can emulate the performance of the main or primary satellite...” This rejection is traversed as follows.

An invention is unpatentable if the differences between it and the prior art would have been obvious at the time of the invention. As stated in MPEP § 2143, there are three requirements to establish a *prima facie* case of obviousness.

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and reasonable expectation of success must both be found in the prior art and not based on applicant’s disclosure. *In re Vaeck* 947 F.2d 488, 20 USPQ2d, 1438 (Fed. Cir. 1991).

Claims 1, 7, 18, 24, 27-30 all include the limitation of a system where each of the  $m$  primary satellites projects  $N/m$  beams onto an area. As noted above in response to the anticipation rejection, Rouffet does not disclose this limitation. Claims 7 and 22 also include the limitation of the beam sub-areas being separated by one beam width, which is also a feature not disclosed by Rouffet.

Claims 12 and 26 recite the additional limitation that each satellite communicates on 1 of  $m$  bands of frequency. As noted above, Rouffet does not use disclose this limitation. Claims 13-14, dependent from claim 12, enjoy the same benefits with respect to the prior art.

The Farrell and Rouffet references have been combined based upon the assumption that Rouffet discloses a satellite that projects  $N/m$  beams onto an area, with beam sub-areas separated by one beam width, and a satellite that communicates on 1 of  $m$  band of frequencies. However, as explained above, Rouffet does not actually disclose these limitations. With respect to the third *prima facie* requirement, even if (for the sake of argument) Farrell does disclose back up satellites, the combination of Farrell and Rouffet does not explicitly disclose every limitation recited in claims 1, 7, 12, 18, 24, and 26-30. Claims 2-6, dependent from claim 1, claims 8-10, dependent from claim 7, claims 13-14, dependent from claim 12, claims 19-21, dependent from claim 18, and claim 25, dependent from claim 24, all enjoy the same distinctions.

With respect to the first *prima facie* requirement, the Office Action states that it would have been obvious to incorporate the teachings of Farrell into Rouffet “to have a practical but satisfactory replacement satellite that can emulate the performance of the main or primary satellite...” However, even if this statement were correct, it does not

explain how an expert in the art could have modified the Rouffet reference in such a way as to describe the claimed invention. As explained above in response to the third *prima facie* requirement, even when combined, Farrell and Rouffet fail to disclose all of the claimed invention limitations. The above-quoted statement from Office Action does not explain *how* even a person with skill in the art could modify Rouffet's system, where each satellite duplicates the function of every other satellite in the system, with Farrell's replacement satellite, to yield a system where a satellite projects N/m beams onto an area, with beam sub-areas separated by one beam width, or a satellite that communicates on 1 of m band of frequencies, as recited in the claimed invention. Alternately stated, the motivation to combine these references cannot be built upon a mere desire to emulate a primary satellite. Rather, to meet the first *prima facie* requirement, there must be an explicit teaching in the Farrell reference that shows an expert how the Rouffet reference can be modified to yield the claimed invention. Such a *prima facie* case has not been made, simply because all the Applicant's claim limitations cannot be found in the two references.

Alternately, if the Examiner is relying upon the knowledge of a person with skill in the art to supply motivation lacking the Rouffet/Farrell references, then additional evidence must be provided. Notable, when the source or motivation is not from the prior art references, "the evidence" of motive will likely consist of an explanation or a well-known principle or problem-solving strategy to be applied". *DyStar*, 464 F.3d at 1366, 80 USPQ2d at 1649. The Examiner has not supplied any explanation of how an expert could possibly modify either Rouffet or Farrell to yield all the explicit limitations recited in the base claims.

Considered from the perspective of the second *prima facie* requirement, even if an expert were given the Rouffet and Farrell inventions as a foundation, no evidence has been provided to show that there is a reasonable expectation of success in the claimed invention.

In summary, the Applicant respectfully submits that a *prima facie* case of obvious has not been supported, and the Applicant requests that the rejection of claims 1-10, 12-14, 18-21, and 25-30 be removed.

In Section 7 of the Office Action, claims 11, 15, and 16 have been rejected under 35 U.S.C. 103(a) as unpatentable with respect to Rouffet, in view of Farrell, and further in view of Faineant et al. (“Faineant”; US 2002/0089943). The Office Action acknowledges that Rouffet/Farrell fail to disclose Internet access or user terminals. The Office Action states that Faineant discloses these features, and that it would have been obvious to combine the teachings of the three references. This rejection is traversed as follows.

The three references are being combined based upon the assumption that Rouffet discloses all the limitations of base claims 7 and 12. However, as noted above with respect to claim 7, Rouffet fails to disclose the limitation of a satellite that projects N/m beams onto an area, or beam sub-areas separated by one beam width. Likewise, Rouffet fails to disclose the limitation of a satellite that communicates on one of m frequencies, as recited in claim 12.

With respect to the third *prima facie* requirement, even if the references are combined, the combination of Farrell, Faineant, and Rouffet does not explicitly disclose every limitation recited in claims 7 and 12. Claim 11, dependent from claim 7, enjoys the same distinctions from

the cited art. Claims 15-16, dependent from claim 12, enjoys the same distinctions.

With respect to the first *prima facie* requirement, the Office Action states that it would have been obvious to combine the reference teachings. However, no reasoning is given to support this assumption. As explained above in response to the third *prima facie* requirement, even when combined, Farrell, Faineant, and Rouffet fail to disclose all of the claimed invention limitations. The Office Action does not explain how even a person with skill in the art could modify any of the three references, to yield a system where each satellite projects N/m beams onto an area, with beam sub-areas separated by one beam width, and where each satellite communicates on 1 of m band of frequencies, as recited in the claimed invention. A *prima facie* case has not been made, because all the Applicant's claim limitations cannot be found in the three references.

Alternately, if the Examiner is relying upon the knowledge of a person with skill in the art to supply motivation lacking the Rouffet/Farrell/Faineant references, then additional evidence must be provided. The Examiner has not supplied any explanation of how an expert could possibly modify either Rouffet or Farrell, in light of Faineant, to yield all the explicit limitations recited in the base claims.

Considered from the perspective of the second *prima facie* requirement, even if an expert were given the Faineant, Rouffet, and Farrell disclosures as a foundation, no evidence has been provided to show that there is a reasonable expectation of success in the claimed invention.

In summary, the Applicant respectfully submits that a *prima facie* case of obvious has not been supported, and the Applicant requests that the rejection of claims 11 and 15-16 be removed.

In Section 8 of the Office Action, claim 17 has been rejected under 35 U.S.C. 103(a) as unpatentable with respect to Rouffet, in view of Farrell and Faineant, and further in view of Stetson et al. ("Stetson"; US 2002/0169669). The Office Action acknowledges that Rouffet/Farrell/Faineant fail to disclose an enterprise Intranet. The Office Action states that Stetson discloses this feature, and that it would have been obvious to combine the teachings of the four references. This rejection is traversed as follows.

The four references are being combined based upon the assumption that Rouffet discloses all the limitations of base claim 12. However, Rouffet fails to disclose the limitation of a satellite that communicates on one of m frequencies, as recited in claim 12.

With respect to the third *prima facie* requirement, even if the references are combined, the combination of Stetson, Farrell, Faineant, and Rouffet does not explicitly disclose every limitation recited in claim 12. Claim 17, dependent from claim 12, enjoys the same distinctions from the cited art.

With respect to the first *prima facie* requirement, the Office Action states that it would have been obvious to combine the reference teachings. However, no reasoning is given to support this assumption. As explained above in response to the third *prima facie* requirement, even when combined, Stetson, Farrell, Faineant, and Rouffet fail to disclose all of the claimed invention limitations. The Office Action does not explain how even a person with skill in the art could modify any of the four references, to yield a system where each satellite communicates on 1 of m frequencies, as recited in the claimed invention. A *prima facie* case has



not been made, because all the Applicant's claim limitations cannot be found in the four references.

Alternately, if the Examiner is relying upon the knowledge of a person with skill in the art to supply motivation lacking the Rouffet/Farrell/Faineant/Stetson references, then additional evidence must be provided. The Examiner has not supplied any explanation of how an expert could possibly modify Rouffet, Farrell, or Faineant, in light of Stetson, to yield all the explicit limitations recited in the base claim.

Considered from the perspective of the second *prima facie* requirement, even if an expert were given the Stetson, Faineant, Rouffet, and Farrell inventions as a foundation, no evidence has been provided to show that there is a reasonable expectation of success in the claimed invention.

In summary, the Applicant respectfully submits that a *prima facie* case of obviousness has not been supported, and the Applicant requests that the rejection of claim 17 be removed.

In Section 9 of the Office Action, claims 22 and 23 have been rejected under 35 U.S.C. 103(a) as unpatentable with respect to Rouffet, in view of Chandler (US 6,219,003). The Office Action acknowledges that Rouffet fails to disclose N/m feed horns coupled to a transponder. The Office Action states that Chandler discloses this feature, and that it would have been obvious to combine the teachings to efficiently communicate to an area on Earth. This rejection is traversed as follows.

The references are being combined based upon the assumption that Rouffet discloses several of the limitations of base claim 22. However, as noted above, Rouffet fails to disclose the limitation of a

satellite that projects N/m beams onto an area, or beam sub-areas separated by one beam width, as recited in claim 22.

With respect to the third *prima facie* requirement, even if the references are combined, the combination of Chandler and Rouffet does not explicitly disclose every limitation recited in claim 22. Claim 23, dependent from claim 22, enjoys the same distinctions from the cited art.

With respect to the first *prima facie* requirement, the Office Action states that it would have been obvious to combine the teachings, to efficiently communicate to an area on Earth. As explained above in response to the third *prima facie* requirement, even when combined, Chandler and Rouffet fail to disclose all of the claimed invention limitations. The Office Action does not explain how even a person with skill in the art could modify either Chandler or Rouffet, to yield a system where each satellite projects N/m beams, or creates beam sub-areas separated by one beam width. The assumption that the combination of Chandler and Rouffet may promote efficient communicates, does not explain how an expert could have modified these references. A *prima facie* case has not been made, simply because all the Applicant's claim limitations cannot be found in the two references.

Alternately, if the Examiner is relying upon the knowledge of a person with skill in the art to supply motivation lacking the Rouffet and Chandler references, then additional evidence must be provided. The Examiner has not supplied any explanation of how an expert could possibly modify Rouffet, in light of Chandler, to yield all the explicit limitations recited in the base claims.

Considered from the perspective of the second *prima facie* requirement, even if an expert were given the Chandler and Rouffet

inventions as a foundation, no evidence has been provided to show that there is a reasonable expectation of success in the claimed invention.

In summary, the Applicant respectfully submits that a *prima facie* case of obvious has not been supported, and the Applicant requests that the rejection of claims 22-23 be removed.

Applicant has reviewed the references made of record and asserts that the pending claims are patentable over the references made of record.

It is believed that the application is in condition for allowance and reconsideration is earnestly solicited.

Respectfully submitted,

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By: /David J. Huffaker/  
David J. Huffaker, Reg. No. 56,771  
Telephone: 858-245-2110